

CLAIMS

What is claimed is:

1. A process for recovering propylene from a propane dehydrogenation process, the process comprising:
partially or fully condensing a depropanizer overhead stream against a relatively warm cooling medium at relatively high pressure;
letting down the liquid overhead stream in pressure; and
partially or fully vaporizing the liquid overhead stream against at least one process stream to provide refrigeration.
2. The process of claim 1 where the letting down the liquid overhead stream in pressure is based on the back-pressure from a reactor.
3. The process of claim 1 where in vaporizing the liquid overhead stream against at least one process stream to provide refrigeration, the refrigeration is in the range of -10 to 30°C .
4. The process of claim 1 where in vaporizing the liquid overhead stream against at least one process stream to provide refrigeration offsets the requirement for refrigeration provided by a propylene or propane refrigeration system in the same temperature range.
5. The process of claim 1 where the relatively warm cooling medium is at a temperature between 20°C and 50°C and where the relatively high pressure is between 10 and 20 barg.
6. A system for recovering propylene from a propane dehydrogenation process, the system comprising:

a depropanizer column generating a depropanizer overhead stream (7);
at least one condenser for partially or fully condensing the depropanizer overhead stream;
at least one device (40, 42, 44) for letting down the pressure of the depropanizer overhead stream (7) as determined by back-pressure of a reactor; and
at least one chiller (40, 42, 46) for partially or fully vaporizing the depropanizer overhead stream (7).

7. The system of claim 6 where the device is a valve (40, 42, 44).